
LEV III Program

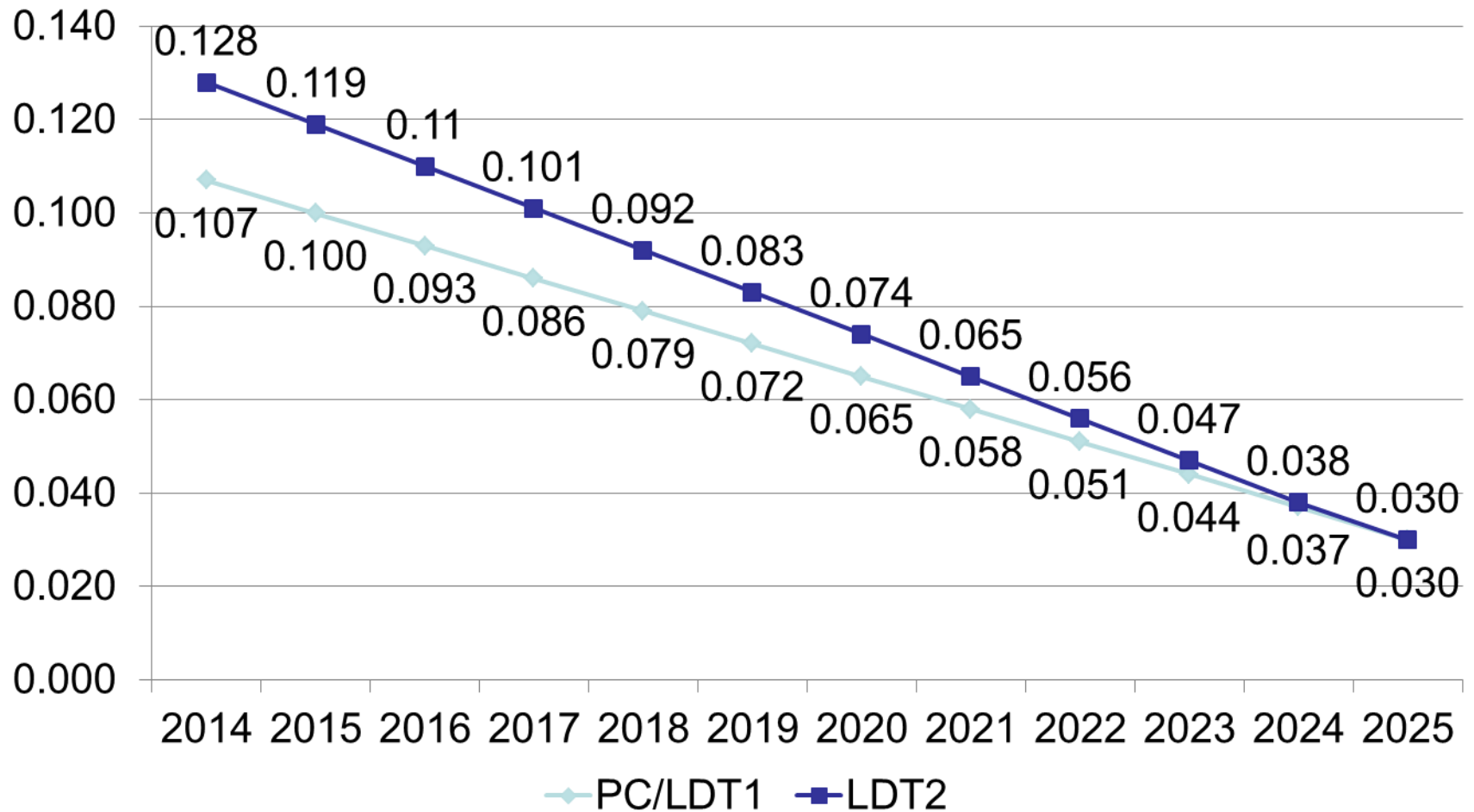
Criteria Emissions
Greenhouse Gas Emissions

LEV III Program - Criteria Emissions

Light-Duty Vehicles

- Declining fleet average 2015-2025
 - Fleet SULEV emissions in 2025 (30mg/mi NMOG+Nox)
- Phase-in to 150K FTP and SFTP
 - 10% in 2015, 20% in 2016, 40% in 2017, 70% in 2018, 100% in 2019
 - Alternative phase-in provided
- Additional emission categories provided for flexibility
- Combined NMOG and NOx standards full useful life standards only
- Increase durability requirement from 120,000 miles to 150,000 miles
- E10 certification fuel
 - Regular 87 octane and Premium 91 octane
 - 100% 2019
 - Phase-in to TBD

Fleet Average Requirement Light-Duty Vehicle



LEV III Program – Criteria Emissions

Light-Duty Vehicles

- Zero-fuel evaporative emission standards
- More stringent SFTP emission standards
- More stringent particulate matter standards
 - 3 mg/mi full useful life standard
 - Four year phase-in beginning in 2017
 - 6 mg/mi interim in-use standard
 - 1 mg/mi full useful life standard
 - Four year phase-in beginning in 2025
 - Mid-term review
- Goal is to harmonize with federal Tier 3 program

LEV III – Criteria Emissions

Medium-Duty Vehicles

- Phase-in 2016-2022
- More stringent emission standards
- Additional emission categories provided
- Combined full useful life NMOG and NOx standards only
- More stringent PM standards
- Increase durability requirement from 120,000 miles to 150,000 miles
- MDVs 8,501-10,000 lbs GVW must chassis certify
- More stringent evaporative emission standards
- Supplemental Federal Test Procedure (SFTP) emission standards

LEV III – Greenhouse Gas Emissions

Light-Duty Vehicles

- ARB and federal agencies still developing program
- Phase-in 2017-2025
- Footprint based
- Standards will rely on a number of ongoing studies addressing:
 - Advanced powertrains and transmissions
 - Lightweight vehicle materials and design
 - Safety analysis
 - Computer simulation of GHG emission benefits
 - Component costs
- Goal is one national GHG standard
- Program details to be announced in September

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ZEV Regulation

ZEV Regulation Overview

- 2012-2014: Minor clarifying changes
- 2015-2017: Minor changes, some provisions extended
- 2018 and Beyond: Major changes – significant increases in vehicle volumes

ZEV Regulation Revisions:

Guiding Principles

- 2050 Target requires a critical mass of vehicles by 2025
- 2025 Volume = high enough production to reach inflection point on cost curve
- Total ZEV program vehicle % of new sales is consistent with market demand
- Vehicle technologies are common in market place – i.e. multiple ZEV platforms

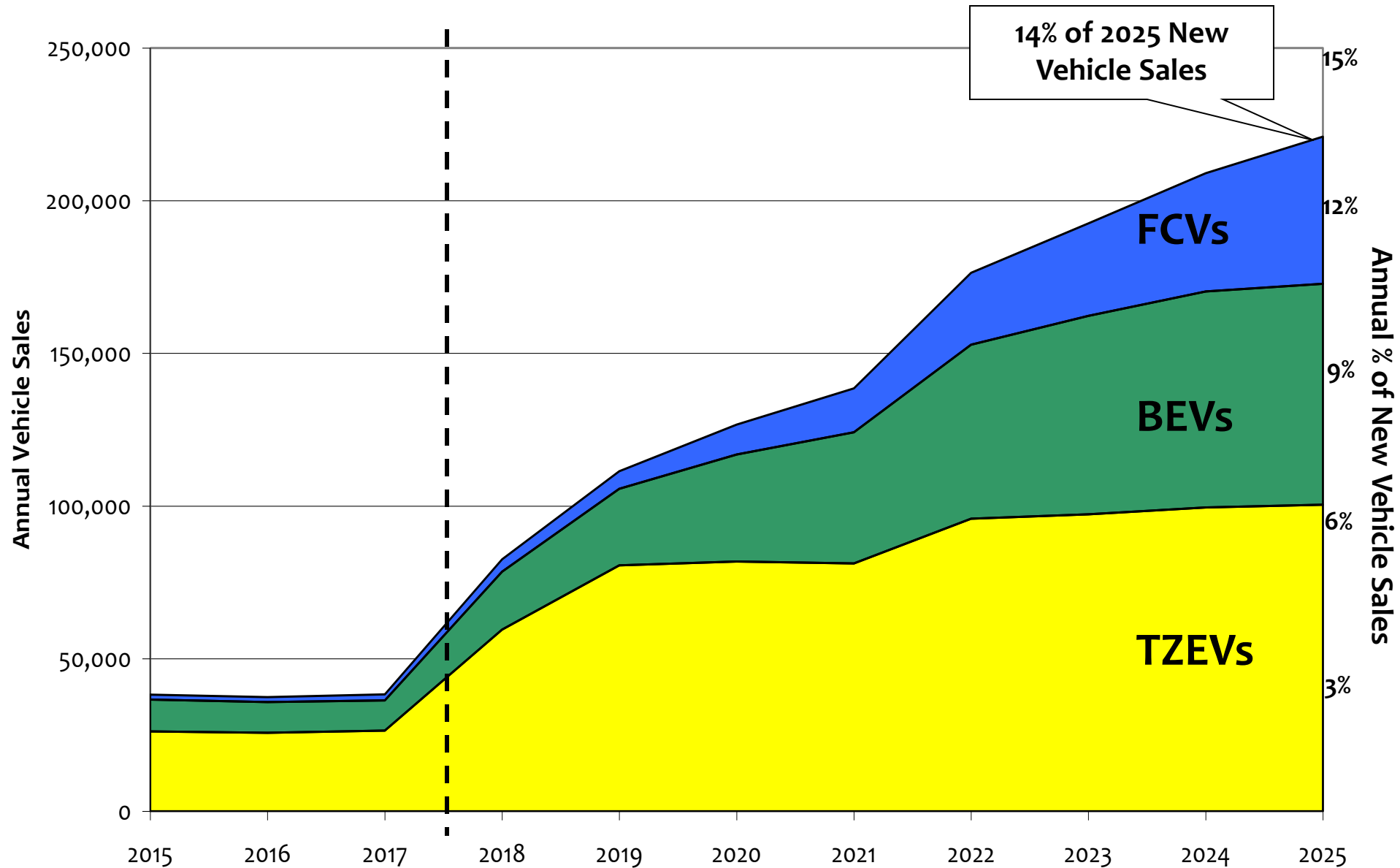
ZEV Regulation:

Major Revisions

- PZEVs and AT PZEVs will remain as compliance options in regulation through MY 2017
 - PZEVs helping set LEV III Criteria Standard
 - AT PZEVs helping set LEV III GHG Standard
- Transitional Zero Emission Vehicles (TZEVs) = Plug-in Hybrids
- Only TZEVs and ZEVs will remain in the ZEV program 2018 and beyond
- Travel expires for BEVs after 2017, continues for Fuel Cells

Likely Compliance Scenario

Min ZEV Compliance with expected FCV/BEV split



ZEV Regulation:

Historical Credits

- Historical PZEV and AT PZEV credit banks converted after MY 2017 compliance
- **PZEVs: 93.75% Discount**
 - Example: 60 PZEVs = 1 TZEV
- **AT PZEVs: 75% Discount**
 - Example: 5 AT PZEVs = 1 TZEV
- Converted credits: only able to fulfill 25% TZEV category

ZEV Regulation:

Manufacturer Status

LVMs	Transitioning LVMs	Continuing IVMs
<ul style="list-style-type: none">• Toyota• Honda• Nissan• GM• Chrysler• Ford	<ul style="list-style-type: none">• Daimler (2016)• BMW (2018)• Hyundai (2018)• Kia (2018)• Mazda (2018)• VW (2018)	<ul style="list-style-type: none">• Subaru• Volvo• JLR• Mitsubishi (?) <p>* Continuing IVMs will be able to fully comply with TZEVs</p>

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Clean Fuels Outlet

Clean Fuels Outlet Regulatory Proposal

Objectives

- Ensure that enough fuel is available to support ZEVs when and where it is needed
- Encourage best possible chance for success for both fuel providers and automakers
- Achieve 2050 GHG goals in the light-duty vehicle subsector including fuel cycle emissions

Why Clean Fuels Outlet?

Resolution 09-66 adopted at Dec. 2009 board hearing – three tiered approach:

- Financial incentives
- Regulatory incentives
- Regulatory mandate: “Mandate hydrogen through modifications to existing regulations or through a new regulation.”

The CFO is our backstop if other approaches fail to result in sufficient infrastructure.

CFO: Proposed Amendments

Applicability

- ZEVs and fuels only
 - Focus on criteria and GHG reductions
 - Hydrogen fuel cell vehicles and hydrogen stations initially
- Conversions excluded
- Placeholder for BEVs, PHEVs and public charging
 - Set metrics and timeline for evaluating public charging need
 - Avoid interfering with private market charging infrastructure
 - Address environmental and economic concerns
 - Return to Board with report and recommendation

Regulated Party

- Major oil companies will be required to build hydrogen stations when vehicle trigger is reached

CFO Proposed Amendments (cont'd)

Vehicle Trigger

- Automakers provide ZEV production projections 3 years out
- 10,000 regional trigger (FCVs)
- 20,000 statewide trigger (FCVs)

Regulation Activation

- Regulation activated when trigger is projected to be met
- ARB determines number of new stations and areas where they are needed
- Requirement to build stations is allocated among major oil companies based on their share of the gasoline market
- Oil companies have 2.5 years to build new stations

Example Outcome of Regulation

If automakers' 2012 projections indicate 10,000 FCVs in Los Angeles region by 2015, ARB will:

1. Calculate required fuel supply, new fuel demand, number of new stations needed and where they are needed
2. Notify oil companies of their requirement - how many stations each must build based on their share of the gasoline market – by Oct. 2012
3. Station locations finalized by July 2013
4. Stations operational by April 2015.

Example - Obligation by Market Share in SCAQMD Region

No. FCVs in Region		10,000	
Yearly H2 demand		2,700,000	
Existing supply anticipated in 2014		1,600,000	
Supply deficit		1,100,000	
Kg/day demand & No. new stations		3,014	8
BP	22%	663	2
Chevron	20%	603	2
Tesoro	15%	452	1
ConocoPhillips	15%	452	1
Valero	13%	392	1
Equilon (Shell)	8%	241	1
ExxonMobil	7%	211	1

What will stations look like?

Performance Criteria

- Meet current fueling specifications (J2601)
- Open to public in a retail setting
- Dispense fuel at two pressures – 35 and 70 MPa
- Dispense fuel during peak demand periods with minimal wait time
- Meets environmental standards for hydrogen (SB1505)
- Located in targeted geographic areas – where vehicle owners live and work

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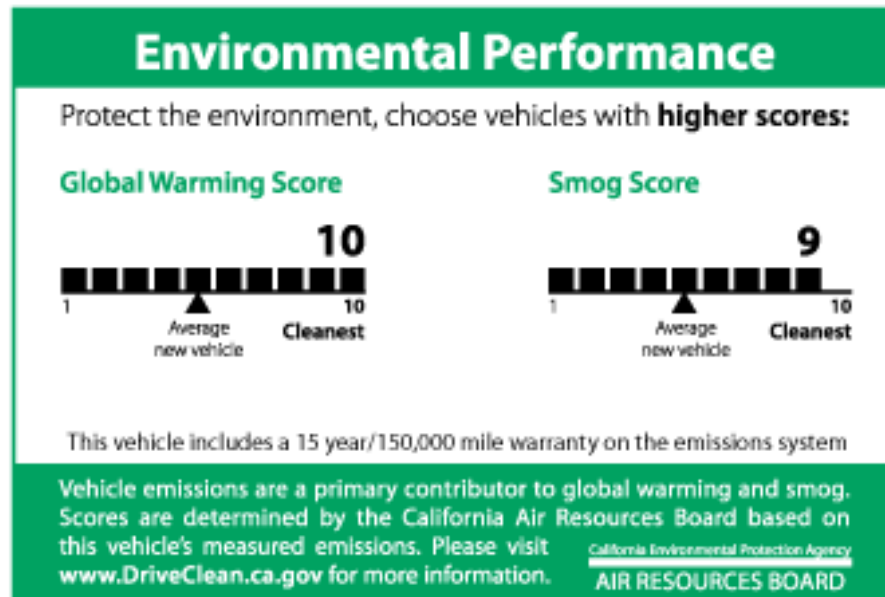
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Environmental Performance Label



July 19, 2011

Public Workshop

Update

- ARB staff worked closely with U.S. EPA and NHTSA to ensure the new label met California's labeling requirements
- U.S. EPA and NHTSA finalized new Fuel Economy and Environment Label in May 2011
- ARB staff propose to deem the new Federal Label meets California labeling requirements

Fuel Economy and Environment



New Label Meets California Requirements

- Compares all cars and trucks to each other
- Uses a 1 to 10 score for both greenhouse gas and smog emissions
- Includes language about upstream emissions and points to a web site for more information
- Includes language that vehicles are a significant cause of smog and climate change
- Uses at least one color
- 5-year fuel save/spend value is useful as more advanced technology vehicles are introduced

Timing of Transition

Before Board consideration:

- California label will be required on all cars sold in California

If Board approves:

- ARB staff would issue conditional certifications allowing OEM's to use the federal label to comply with California labeling requirements
- ARB staff would issue mail-out following November Board Hearing outlining details

After OAL approval:

- Once law, Federal Label would serve as compliance with CA labeling provisions

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- Provides Global Warming and Smog Scores for all cars certified in CA
- Needs to compare “apples to apples”
- Will continue to use CA scores until our regulation becomes law (est. summer of 2012)
 - Will add clear information about the transition to the new label and the new scores
- Moving forward we will explore what types of vehicle related data should be provided on Drive Clean to best serve the needs of CA drivers

Questions/Comments

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 - www.driveclean.ca.gov
 - www.arb.ca.gov/msprog/labeling/labeling.htm
 - www.fueleconomy.gov